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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/655,893	09/06/2000	Delin Li	198-0191/198-0696	8907

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John G. Chupa
Law Offices of John Chupa & Associates P.C.
28535 Orchard Lake Rd
Ste. 50
Farmington Hills, MI 48334

EXAMINER

TRINH, MINH N

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/655,893	Applicant(s) LI ET AL.	
	Examiner Minh Trinh	Art Unit 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-20 is/are pending in the application.
- 4a) Of the above claim(s) 14-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/6/00</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's election of Group II, species D in the reply filed on 9/24/02 is acknowledged. However, upon further review of elected species D of Figs. 4a-e. It is noted that only claims 8-13 are read on the elected species. Regarding claims 14-20, these claims are read on non-elected species C of Figs. 3a-e. Thus, claims 14-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species C, there being no allowable generic or linking claim. Election was made in the reply filed on 9/24/02. Since, applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). An Office action on the merits of claims 8-13 as follows.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "a first pre circuit assembly" and "a second pre-circuit assembly" (see claim 8, lines 1-4) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

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is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The title

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: "Method for Forming Multilayer Circuit Board assembly" or the like.

Specification

4. The specification is objected to because it does not clearly describe the feature such as "a first pre circuit assembly and a second pre-circuit assembly" as recited in claim 8, lines 1-4. Correction is required. See MPEP § 608.01(b). Noted that at best the specification discloses a pre-circuit assembly 124 and the substrate portion 112 but fail to describe exactly what is referred as "a first pre circuit assembly and a second pre-circuit assembly".

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 8-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The following are examples:

It is not known what applicants are referring as "a first pre-circuit assembly and a second pre-circuit assembly" (see claim 8, lines 2-3) since the specification and/or the drawing is silent of what is being referred as a first and second pre-circuit assembly. Also, the limitation recites: "inserting conductive material into said aperture effective to connect said first portion of said second conductive layer to said first conductive layer" (claim 8, lines 13-15) appears to be incomplete because the specification is silent about the second pre-circuit assembly and the drawings do not clearly show the above including the connection between "the first portion of said second conductive layer to said first conductive layer".

Also, the phrase: "a second pre-circuit assembly including a second conductive layer" (see claim 8, lines 3-4) is not clear as to whether "a second pre-circuit assembly" is actually having an associated "a second conductive layer" connected therefrom.

The phrase: "selectively removing portions of said second pre-circuit assembly which are disposed above said first portion of the second pre-circuit assembly . . ." (see

claim 9, lines 3-5) is not because it is unclear what being referred as i.e., second pre-circuit assembly and/or portions of said second pre-circuit assembly, etc.,

7. Regarding claims 9-13. It is noted that no art rejections have been applied to these claims, since there are a great deal of confusion and uncertainty as to the proper interpretation of the limitations of the above claims. Therefore, it would not be proper to reject such claims on the basis of prior art. See MPEP 2173.06.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claim 8 as best understood is rejected under 35 U.S.C. 102(b) as being anticipated by Akiyama et al (3,801,338).

Akiyama et al disclose a method for connection within a multilayer circuit board including a first pre-circuit assembly 34 having a first conductive layer 32, and a second pre-circuit assembly 36 having a second conductive layer 33 the method comprising: forming an aperture 44 within said first pre-circuit assembly (see related Fig. 7E); aligning the second pre-circuit assembly 36 with said first pre-circuit assembly 34 such that a first portion of said second conductive layer resides above said aperture (see Fig. 7E); attaching said first pre-circuit assembly 34 to said second pre-circuit assembly 36;

and inserting conductive material 44 into said aperture effective to connect said first portion of the second conductive layer to said first conductive layer (see Fig. 7F). Note that references 34 and 36 of Akiyama et al represented the broadly claimed pre-circuit assembly as claimed by the present application claims.

Regarding claims 9-13 (refer to paragraph 7).

10. Claim 8 as best understood is rejected under 35 U.S.C. 102(b) as being anticipated by Livshits et al (4,404,059).

Livshits et al also disclose a method for connection within a multilayer circuit board including a first pre-circuit assembly 1 having a first conductive layer, and a second pre-circuit assembly 7 having a second conductive layer the method comprising: forming an aperture within said first pre-circuit assembly (see related Fig. 5); aligning the second pre-circuit assembly 7 with said first pre-circuit assembly 1 such that a first portion of said second conductive layer resides above said aperture (see Fig. 5); attaching said first pre-circuit assembly 1 to said second pre-circuit assembly 7; and inserting conductive material 21 into said aperture effective to connect said first portion of the second conductive layer to said first conductive layer (see Fig. 5). It is noted that layer 21 of Livshits et al represented the claimed conductive material of the present application invention claims.

Regarding claims 9-13 (refer to paragraph 7).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited for their teaching of method for forming connection on PCB.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Trinh whose telephone number is (703) 305-2887. The examiner can normally be reached on Monday -Thursday 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (703) 308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Minh Trinh
Patent Examiner Group 3729

9/13/04
mt